UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/535,831	03/28/2000	Yoram Ofek	SYN 1756	5043

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SITRICK & SITRICK
8340 N LINCOLN AVENUE SUITE 201
SKOKIE, IL 60077

EXAMINER
LEVITAN, DMITRY

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	Application No. 09/535,831	Applicant(s) OFEK ET AL.	
	Examiner Dmitry Levitan	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED .(35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>21-67 and 82-91</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>21-67 and 82-91</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some *   c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4,5</u> .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

Specification

1.   Abbreviations or acronyms SVP, FAST, MCST are cited throughout the specification

without explanation. Applicant should provide a full explanation for the acronyms at least at

their first occurrence in the specification.

2.   The disclosure is objected to because of the following informalities: Brief Description of

the Drawings lacks FIG 49a-49c.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless —
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 21-52, 54-67, 82-86 and 89-91 are rejected under 35 U.S.C. 102(e) as being

anticipated by Ofek (US 6,272,131).

        Regarding claims 21, 22, 37, 55, Ofek teaches an input interface system (id Fig. 1 and

12:15-28) for mapping asynchronous stream of data packets (id 14:52-61), each comprising a

header portion and a payload portion (id Fig. 14), from at least one source to at least one

destination (id Fig. 1), said system comprising:

A Common Time Reference divided into plurality of contiguous periodic super cycles each

comprised of at least one contiguous time cycles each comprised of at least one contiguous time

frame (id Fig. 3-6 and 11:27-60);

At least one synchronous virtual pipe having a subset of predefined time frames uniquely

associated therewith (id Fig. 7 and 11:61-67, 12:1-14);

Plurality of queues wherein each queue is associated with a respective one of the SVPs (Queues

on id Fig. 13 and 14:37-51);

Means for analyzing the header portion of the asynchronous data packets (routing controller 35

on id Fig.12 and 14:38-52);

Means for storing the analyzed data packets in respective queues responsive to the means for

analyzing (RAM of the Routing controller id 14:38-43);

A link coupled to the destination (links 41 on id Fig.1); and

An SVP forwarding Controller (Scheduling controller 45 on id Fig. 20 and 16:40-56),

comprising a second memory for storing SVP schedules (RAM on id Fig. 20 and 16:53-56), and

for forwarding (id 16:45-52), to the link, respective ones of the asynchronous data packets from

respective ones of the queues responsive to the respective SVP schedule and the CTR (id 16:57-

65).

Regarding claim 82, Ofek teaches dividing queues into CBR, VBR and BE queues (id

Fig. 20);

Identifying, storing and forwarding CBR, VBR and BE packets in respective queues associated

with a time frame (id 17:16-44).

Regarding claims 23-27, 43-46, 57-61, Ofek teaches a system with predefined, cyclical

time frames, recurring in time cycle and a super cycle, starting at a point of time in the CTR (id

9:14-63 and Fig. 4-8 11:27-67, 12:1-14).

Regarding claim 28-31, 47, 48, 56, 62, Ofek teaches a system wherein the link is

comprised of plurality of channels (id 8:10-36) and plurality (output ports 40 on id Fig. 1) of

SVP Forwarding Controllers (scheduling controller 45 id 16:41-45), comprising set of queues (id

Fig. 20), associated with channels (id Fig. 1), provides mapping of the data packets from the

queues (id 16:45-67, 17:1-2) to the channels responsive to the SVP schedules and the CTR.

Regarding claims 32-34, 49, 63, 64, Ofek teaches a system with plurality of separate and

independent streams of asynchronous data (id 10:9-16) and plurality of SVP Forwarding

Controllers (controllers 45 of ports 40 id Fig. 1) each comprising a queue (Fig. 20).

Regarding claims 35, 36, 50-52, Ofek teaches a system with the means for analyzing

provides analysis of streams of data packets and each stream is associated with one of the means

for analyzing, comprising at least one queue (routing controller 35 on id Fig. 12, 13 and 10:17-

39, 14:38-62).

Regarding claims 38-42, 83, 84, 89, Ofek teaches a system wherein queues are prioritized

into CBR, VBR and BE, the means for analyzing are comprised of a controller and scheduling

table and means for storing the packets in the queues (Packet scheduling and rescheduling

controller 45A, forwarding table 45B, RAM 45C and queues B1-k, B-E on id Fig. 20 and 16:40-

67, 17:1-44).

Regarding claim 54, Ofek teaches the CTR is UTC standard, and the super cycle is one

UTC second, a predefined number of UTC seconds and a fraction of UTC second (id 20:1-15).

Regarding claims 65-67, Ofek teaches a system comprising input ports, output ports, a switching fabric, an alignment subsystem comprising timing for each time frame set and means for scheduling the transfer of data packets during a time frame associated with the input port (id Fig. 3, 13 and 11:21-27, 14:33-51).

Regarding claims 85, 86, Ofek teaches a method wherein each SVP is associated with Pipe ID, explicitly contained in the header of IP packets, UDP header, MPLS label, ATM header (id 8:1-35, 10:9-38).

Regarding claims 90 and 91, Ofek teaches a method comprising inserting a delimiter between one of CBR and VBR, CBR and BE, VBR and CBR, VBR and BE, BE and CBR, BE and VBR data packets that are transmitted within same frames (id Fig. 22 and 17:21-44).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 53, 87 and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ofek (6,272,131).

Regarding claim 53, Ofek substantially teaches all the limitations of claim 37 including use of IP, ATM, MPLS and MAC packets (id 10:9-30) and SONET/SDH communication links (id 14:19-31).

Ofek does not teach using Frame Relay and Fiber Channel packets.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add using Frame Relay and Fiber Channel packets to the system of Ofek to improve the system compatibility with popular standards.

Regarding claims 87 and 88, Ofek substantially teaches all the limitations of claims a1a. Ofek does not teach selecting queues and forwarding the data packets from queues in arbitrary order.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add selecting queues and forwarding the data packets from queues in arbitrary order to the system of Ofek as a design choice.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ofek   US006038230A   Packet switching with common time reference over links with dynamically varying delays.

Ofek   US006377579B1   Interconnecting a synchronous network that utilizes a common time reference.

Ofek   US006385198B1   Signaling for timely forwarding in packet switching network with common time reference.

Ofek   US006272132B1   Asynchronous packet switching with common time reference.

Ofek   US006442135B1   Monitoring, policing and billing for packet switching with

a common time reference.

Ofek   US006259695B1   Packet telephone scheduling with a common time

reference.

Ofek   US006330236B1   Packet switching method with time-based routing.

Robinett   US006351474B1   Network distributed remultiplexer for video program

bearing transport streams.

Baldi   End-to-end delay of videoconferencing over packet switched networks
INFOCOM '98. Seventeenth Annual Joint Conference of the IEEE Computer and
Communications Societies. Proceedings. IEEE , Volume: 3 , 29 Mar-2 Apr 1998
Page(s): 1084 -1092 vol.3

Li   Distributed source-destination synchronization.
Communications, 1996. ICC 96, Conference Record, Converging Technologies for
Tomorrow's Applications. 1996 IEEE International Conference on, Volume: 3, 23-27 Jun
1996 Page(s): 1341 -1347 vol.3.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Dmitry Levitan whose telephone number is 703-305-4384. The

examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-872-9314 for regular

communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703-305-4750.

Dmitry Levitan
Patent Examiner.
May 30, 2003

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600